Correspondence

The Editors will be pleased to receive and consider for publication correspondence containing information of interest to physicians or commenting on issues of the day. Letters ordinarily should not exceed 600 words and must be typewritten, double-spaced, and submitted in duplicate (the original typescript and one copy). Authors will be given the opportunity to review the editing of their correspondence before publication.

Acid-Base Disorders Revisited

To THE EDITOR: The diagnosis and treatment of acid-base disturbances constitute a crucial part of the practice of medicine. Learning these concepts has been notoriously difficult in most medical schools, including ours. For this reason, the article by Haber in the August 1991 issue evoked a considerable amount of interest and enthusiasm.[1] Simplifying the approach to acid-base disturbances to only three steps without memorizing rules of "compensation" or using a nomogram seems at first glance to be extremely appealing.

On further evaluation, however, there are some problems with this approach. Consider the case of a patient who has a metabolic acidosis and inadequate respiratory adaptation. The arterial blood gas values might be

$pH = 6.82$, $HCO_3^- = 6$ mmol/liter, $P_{CO_2} = 38$ mm of mercury.

Clearly this acid-base disturbance is clinically best viewed as a complex acid-base disturbance. Such a patient might, in fact, require intubation and assisted ventilation. Using Haber's algorithm, however, the importance of the inadequate respiratory compensation, which could have profound clinical implications, would be missed.

Therefore, we suggest that "rules of compensation," although tedious and difficult to memorize, play an important role in the clinical evaluation of acid-base disturbances, mandating the addition of another "step" to Haber's "rules of thumb."

ROBERT I. CARSON
Medical Student (IV year)
JOSEPH I. SHAPIRO, MD
Assistant Professor of Medicine
University of Colorado School of Medicine
4200 E 9th Ave
Denver, CO 80262

REFERENCE

1. Haber RJ: A practical approach to acid-base disorders. West J Med 1991 Aug; 155:146-151

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Dr Haber Responds

To THE EDITOR: Carson and Shapiro are concerned that a simplified approach to acid-base analysis may miss important disorders of compensation. Quantitative analysis remains the standard for assessing acid-base status, but a less complex approach can provide much of the same information.

Consider the example offered by Carson and Shapiro. The low pH and low bicarbonate concentration indicate a metabolic acidosis is present; the normal P_{CO_2} indicates respiratory compensation has not occurred. Because the respiratory response to changes in pH is rapid, a normal P_{CO_2} in the presence of a severe metabolic disturbance is inappropriate and indicates that an additional respiratory disorder has prevented the normal compensatory response. Recognition of the mixed nature of this acid-base disturbance does not require a quantitative approach but merely knowledge of the direction and time course of normal respiratory compensation and an assessment of whether or not it has occurred.

A similar approach can be applied to metabolic compensation. Because metabolic compensation requires renal adjustment and takes three to five days, the absence of metabolic compensation for a respiratory disorder indicates that the respiratory disturbance is acute. Evidence of metabolic adjustment points to a more chronic disorder.

These guidelines can be expressed in behavioral terms: Whenever a primary acid-base disorder is identified, determine whether compensation has occurred. If respiratory compensation is expected, but not observed, then an additional respiratory disorder is present. If metabolic compensation is expected but not observed, then the primary respiratory disorder is acute. This approach will identify most clinically important disorders of compensation, including those in the example posed by Carson and Shapiro, without memorizing "rules of compensation" or using a nomogram.

RICHARD J. HABER, MD
Professor of Medicine
University of California, San Francisco
Chief, Division of General Internal Medicine
Assistant Chief, Medical Services
San Francisco General Hospital and Medical Center
UCSF, Box 0862
3rd and Parnassus Aves
San Francisco, CA 94110

Manifestations of Adult Varicella in the United States Navy, 1984-1987

To THE EDITOR: Varicella zoster virus (VZV) infection remains a significant cause of hospital admissions and lost workdays in the US Navy. A review of military cases sheds new light on complication rates of this disorder.

We reviewed the medical records of patients with VZV infection admitted to Naval Hospital, San Diego between January 1984 and April 1987. The diagnosis was made on clinical grounds alone. All radiographs were reviewed and were classified as abnormal if two pulmonologists independently agreed that signs of pneumonitis were present. The

TABLE 1.—*Ethnic Background of Patients With Varicella (n=485)*

Race	Patients No.	Patients (%)
White	252	(52.0)
African American	110	(23.0)
Filipino	86	(18.0)
Hispanic	12	(2.5)
Asian	10	(2.1)
Unrecorded	15	(2.4)